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ABSTRACT

Recent literature on motivation has documented that perceptions of self-competence and motivational orientations for learning are interrelated. This study focuses specifically on children's perceptions of their scholastic abilities, how these perceptions develop and how they relate to intrinsic motivation for learning. The rationale for this study is that such an exploration will deepen understandings of the nature and mechanisms underpinning this relationship. The research design of this study consists of both quantitative and qualitative dimensions. First, questionnaires were used to gather data about the Year 6 participants' self-perceptions of academic competence, intrinsic motivation, and affect for learning. Participants were then targeted for follow-up interviews according to a matrix of low and high competence perceptions and intrinsic motivation. Three students from each of the six focal groups identified were then selected to take part in the interviews. Following categorisation of interview responses according to emergent themes, narrative inquiry was the means of data analysis. Six narratives describe how the constructs under consideration relate to one another and highlight implications these relationships have for educational practice. Contains 38 references, 4 notes, and 5 figures and 3 tables of data. (Author/RS)

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SELF-PERCEPTIONS OF ACADEMIC COMPETENCE: HOW THEY DEVELOP AND HOW THEY RELATE TO INTRINSIC MOTIVATION FOR LEARNING IN ENGLISH AND MATHS FOR YEAR SIX STUDENTS

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Recent literature on motivation has documented that perceptions of self-competence and motivational orientations for learning are interrelated. This study focuses specifically on children's perceptions of their scholastic abilities, how these perceptions develop and how they relate to intrinsic motivation for learning. The rationale for this study is that such an exploration will deepen understandings of the nature and mechanisms underpinning this relationship. The research design of this study consists of both quantitative and qualitative dimensions. First, questionnaires were used to gather data about the Year 6 participants' self-perceptions of academic competence, intrinsic motivation, and affect for learning. Participants were then targeted for follow-up interviews according to a matrix of low and high competence perceptions and intrinsic motivation. Three students from each of the six focal groups identified were then selected to take part in the interviews. Following categorisation of interview responses according to emergent themes, narrative inquiry was the means of data analysis. Six narratives describe how the constructs under consideration relate to one another and highlight implications these relationships have for educational practice.

Motivation. It has been and will always be at the heart of teaching and learning (Maehr & Meyer, 1997). As educators, it is critical that we focus on arguably the most important determinant of a child's motivation for learning: 'the self-as-perceived' (Maehr & Meyer, 1997, p.387). Indeed, both individually and together, motivation and self-perceptions of ability have been found to greatly influence learning (e.g., Harter & Connell, 1984; Boggiano & Pittman, 1992; Bandura, 1977a; Dweck, 1975; Deci, 1975; de Charms, 1968; White, 1959; Ames & Ames, 1989). Specifically, we hypothesise that the child who believes he/she is competent in a given domain within the classroom context will also be intrinsically motivated in that domain (although s/he may not be as intrinsically motivated to learn in other domains).

Self-perceptions of competence, according to Ames and Ames (1984), are the subjective judgements one makes concerning one's ability to perform effectively in a given area. *Motivational orientation* refers to the nature of motivational stance that the student adopts in his/her classroom learning. Thus, the student may engage in scholastic endeavours for *intrinsic* reasons (because activities are inherently satisfying, Stipek, 1988) or *extrinsic* reasons (such that the student focuses on the reward that is mediated by, but not part of, the scholastic endeavour, Pittman, Boggiano, & Main, 1992). Another way of conceptionalising motivational orientation is provided by goal theory. Mastery learning is self-referential, focusing on the development of skill and competence relative to the task and one's past performance, while performance learning

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highlights normatively based standards and promotes the demonstration of ability relative to others (Harakiewicz, Barron, & Elliot, 1998). Performance orientations are further divided into performance approach (desire to demonstrate ability relative to others) and performance avoidance (desire to avoid demonstrating lack of ability relative to others). Although there is considerable overlap in these constructs, they have developed through separate literature bases. For the present study, the terms intrinsic and extrinsic motivation are adopted.

Sources of Students' Academic Competence Perceptions

The 'self' is a social construction according to Cooley (1902), and he labelled this phenomenon the 'looking glass self'. By this term, he was inferring that the child comes to see the self in the way he/she perceives that others see it. Mead (1934) extended this perspective, arguing that in childhood, children tend to coordinate the collective opinions of others into an evaluation of the self, which she termed the 'generalised other'. Contemporary theorists have extended the ideas of these early scholars of the 'self', and have outlined social processes through which the child comes to perceive the self, such as comparisons with others and adopting the opinions of significant others (Harter, 1990). Indeed, research findings suggest that by fifth or sixth grade, social information such as the comparison of grades and the feedback from significant others, replaces effort as the basis of competence perceptions (Blumenfield, Pintrich, & Hamilton, 1987).

Social Comparative Processes and Perceptions of Competence. *Social comparative processes* are the perceptions that arise from the child comparing his/her ability in a certain area to the ability of others. As Stipek and Daniels (1988, p.352) have pointed out, there are recent instructional changes in primary schools that make normative comparisons more salient for children as they progress through school, such as increased emphasis on grading and ability grouping. Harter, Whitesell and Kowalski (1992) contend that students face the demands of a school culture that increasingly reinforces extrinsic motivation through the practices of grading and the issuing of marks. Grades act as indicators for students to determine their relative performance on standardised tests and assignments, and hence students may perceive that teachers have greater control over evaluative outcomes than they themselves have. This in itself has serious educational implications and may lead to weaker relations between students' self-perceptions of competence and their actual academic achievement. The ELLA (English Language Literacy Assessment) and Basic Skills Tests are examples of standardised testing procedures recently introduced in New South Wales schools. The NSW Higher School Certificate grading and reporting up until 2000 is another local example of purely normative criteria for the assessment of academic competencies. While this system has now improved with clear criteria for success provided to Year 12 students along with ranking information, the NSW education system still acts to promote social comparison as a means for determining one's academic competence. Within the NSW context then, we would expect social comparisons to be an important determinant of perceived competence.

Influences of Significant Others and Perceptions of Competence. *Influences of significant others* include the child's beliefs about what peers, parents and teachers think of his/her academic competence. Peers have been shown to have a major influence on perceptions of academic competence (Oldfather & Dahl, 1994). In any one classroom, positive and negative feedback regarding one's ability is frequently provided by others in the class. This feedback may come in the form of verbal comments or exchanges that take place after results of a test or activity are made available to the class. Eccles, Adler and Kaczala (1982) suggested that parents

might convey beliefs about their child's competencies through the messages they give regarding what they think about the child's abilities, the difficulty of achievement tasks and the importance of various activities. Some longitudinal studies have been conducted in this area, revealing that parents exert a powerful influence on children's subsequent perceptions of competence (e.g., Watt, 1995; Jacobs & Eccles, 1992). In regard to the influence of teachers, Harter (1982) found that students' self-perceptions of competence become more highly correlated with teacher ratings of student ability in the fifth and sixth grades. This could be due to higher teacher influence, input and feedback at this level or the fact that older children become more familiar with the way their so-called 'ability' is determined within the school system. It is clear that the information and expectations that teachers either overtly or covertly communicate to students can have a powerful influence on the child's personal beliefs about competencies and hence, achievements (Boggiano & Pittman, 1992).

Performance Cues and Perceptions of Competence. *Performance cues* describe feedback the child receives in the form of marks, grades and previous performance. Research shows that self-perceptions of competence in the fifth and sixth grades depend heavily on grades and marks given to students by teachers (Blumenfield, Pintrich, & Hamilton, 1987). Grolnick and Ryan (1989) showed that grades have a negative impact on children's conceptual learning, and also tend to undermine intrinsic motivation for learning. Administering grades and ranks in the classroom is not favourable if we want children to be cognitively engaged, develop thorough understandings of vital concepts and be intrinsically motivated to learn.

Affect and Perceptions of Competence. *Affect* describes the liking the child has for the particular subject area (Eccles et al., 1982) and is a source of perceived competence which previous research has often neglected (Harter, 1992). What will be focused on in my research, alongside previously discussed sources of self-competence, is how affect or liking for a subject contributes to the development of self-perceptions of academic competence. As social beings, we feel, we experience emotion, and we like and dislike certain subjects. Such affective states will no doubt contribute to how we feel about our competence in various subject areas (Harter, 1992).

The Value of Intrinsic Motivation for Learning

Why should we as teachers have a goal of fostering intrinsic motivation in our students? Schunk (1989, p.55) contends that intrinsically motivated students feel that a particular activity is worth doing for its own sake even if nothing else were to come if it. Additional advantages of being highly intrinsically motivated include the development of stronger conceptual understanding of task material, greater attention on the task at hand and hence, greater learning outcomes. Harackiewicz, Barron and Elliot (1998) offer a description of the characteristics of students who are motivated by intrinsic versus extrinsic motivational orientations. Students who are intrinsically motivated strive to develop competence by learning as much as they can about a subject, focusing on their development of skill and competence relative to the task. Conversely, students who are extrinsically motivated to achieve their goals either strive to outperform peers in their schoolwork and focus on demonstrating their ability relative to others (referred to as *performance approach* goals in the goal theory literature), or focus on avoiding the demonstration of their lack of ability relative to others (these are known as *performance avoidance* goals).

The Relationship between Competence Perceptions and Intrinsic Motivation

Generally, it has been found that students with high perceptions of competence in a given area of performance are more likely to continue performing well in that same area and to also initiate behaviours that act to enhance their ability (Maehr, 1984). In contrast, those students with low perceptions of competence are more likely to feel discouraged in their attempts to perform and so may not invest the effort needed to improve their ability. While these findings intuitively make sense, the mental processes and feelings that connect perceptions of competence to the level of intrinsic motivation adopted are not clear and need to be explored.

Theoretical Model for the Present Study

Harter and colleagues' theoretical model provides the framework for our research. Their model reflects the view that competence evaluation leads to affective reactions, which influence motivational orientation. There are four primary components to the theoretical model for the present study (see Figure 1). These components are: sources of perceived academic competence, perceived academic competence, affect, and level of intrinsic motivation. Ways in which intrinsic motivation and affect may be enhanced are also explored. The theoretical model adopted for this study posits that evaluations of academic competence stem from social comparative processes, the influences of peers, parents and teachers, performance cues and affect. Competence and affect perceptions relate to the level of intrinsic motivation for the particular subject domain in the classroom. For example, if a child believes he/she is competent in English, he/she likes English and hence, is more likely to be intrinsically motivated to engage in English tasks and have a desire to want to learn more in English. Conversely, if a child believes he/she has low competence in English, he/she dislikes English and will be less intrinsically motivated to engage in English tasks in the classroom.

[See Figure 1]

METHODOLOGY

Design

The nature of questions and issues to be investigated demanded that responses be extensive, descriptive and thorough. The survey phase provided clear general patterns of relationships between perceptions of competence, intrinsic motivation, and affect, and permitted the selection of students for the six focal interview groups. Since perceived academic competence and intrinsic motivation for learning were approached from a social constructivist theoretical orientation, emphasising their socially constructed nature, it was relevant to employ a more humanistic approach for data collection and analysis in accompaniment with the more efficient quantitative technique of questionnaire data collection. Also, this qualitative technique allowed the in-depth exploration of the intimate relationships between self-perceptions of competence and intrinsic motivation. A qualitative approach to research has not been adopted previously in this area and this methodological approach gives an holistic understanding of the complex interactive relationships between constructs.

Participants

Participants were drawn from six classes of Year 6 students, together containing 98 students all within the age range of 11-13 years, in three coeducational government schools in the Metropolitan East region of Sydney. The schools were situated in a middle-class socio-economic status region chosen for generalisation purposes, since middle-class schools subsume the majority of students. I specifically chose Year 6 students because of the widely researched and documented phenomenon that at this age, primary school children's self-perceptions of competence are more highly correlated with performance ratings of their ability level than students at a younger primary-school age and students in their first years at high-school (Harter, 1982). Hence, students at this age may become better able to make realistic judgements about their competence in readiness for their high-school education (Nicholls, 1979a; Harter, 1982; Paris & Byrnes, 1989).

Materials

The Questionnaire. The survey administered for this study had two sections, the first half asking questions about English and the second asking parallel questions about Maths. The survey contained three different sub-scales. The first perceived competence scale was drawn from Eccles et al. (1983), consisting of three items anchored at 1, indicating weak agreement with a given statement, to 7, indicating strong agreement with a given statement. The second intrinsic motivation sub-scale was drawn from Midgley et al. (2000), from their revised PALS (Patterns of Adaptive Learning Scales) instrument, which measured intrinsic motivation on a five-point Likert scale. The five items for this scale were anchored at 1= 'Not at all true', 3= 'Somewhat true' and 5= 'Very true'. The third affect sub-scale was also drawn from Eccles et al. (1983) and consisted of three items anchored at 1, indicating weak agreement with the given statement, to 7, indicating strong agreement with the given statement. Importantly, the three instruments from which the sub-scales were drawn have been found to be reliable and have construct validity, in previous studies (Midgley et al., 2000; Eccles et al., 1983).

The Interview. Interview questions were tailored to ask questions in reference to, and expand on, those answers given in the survey. Thirteen questions were asked in the interviews, specifically relating to the development of the student's self-perceptions of competence in Maths/English, how he/she thinks these perceptions of high/low ability influence his/her intrinsic motivation in Maths/English, and how he/she thinks teachers could promote more student interest in learning for Maths/English.

Procedures and Methods of Data Gathering

Following preliminary analyses of the questionnaire data, thirty-minute semi-structured interviews were conducted, where participants were selected based on a matrix of perceived competence and intrinsic motivation (see Figure 2). A triad split was performed on each of perceived competence and intrinsic motivation with participants selected based on those scoring in three particular 'cells' of this matrix. These cells were high/high, high/low and low/high combinations of perceived competence and intrinsic motivation, as graphically depicted in Figure 2. From each of the six focal groups, three participants were randomly selected so that 17 interviewees comprised the total interview sample.

[See Figure 2]

Analyses

Survey Data. Factor analyses were performed for English and Maths items to establish convergent and divergent construct validity for items. Following factor analyses, the reliability of derived factors was measured using Cronbach's alpha. Dividing skewness and kurtosis statistics by their respective standard errors expressed skewness and kurtosis in standard deviation units. These were statistically significant ($p<0.05$) if their absolute values exceeded 2. In the event of these calculations revealing significant departures from normality, Spearman non-parametric correlations would be used to assess relationships between key constructs. Otherwise, Pearson parametric correlations would be used.

Interview Data. The interview data analysis involved drawing out emergent themes from the interviews. This took place through first noting all responses from interviewees in a table (see Table 3). Responses from each focal group were listed under the headings 'sources of and thoughts on, perceived competence', 'sources of and thoughts on, motivation' and 'sources of, and thoughts on affect'. For each theme present in the interview data for each focal group, a tally was noted alongside it, indicating the number of interviewees it was relevant for. This visual summary made clear the similarities and regularities of the themes apparent for each group. This was required to ensure the writing of the narratives would reflect the intimate relationships between sources of perceived competence, perceived competence, intrinsic motivation, and affect for each focal group. Following careful analysis of themes from the summary table (see Table 3), narrative inquiry served as a further means of data analysis, where narratives based on the thematic analysis of the six interview groups revealed how the constructs under consideration related to one another.

RESULTS

Establishing Construct Validity and Reliability

Factor Analyses. An exploratory factor analysis was conducted on items comprising the three constructs for each of English and Maths, in order to establish construct validity. The factor analyses showed the hypothesised three constructs did not emerge for Maths as was expected from previous research, although the three constructs were validated for English. One item in the perceived competence scale cross-loaded with the affect construct and was consequently discarded from further analyses. For Maths, only two factors were found instead of the expected three. A three-factor solution produced multiple cross-loadings and was not supported by the latent root or scree-plot criteria. Reasons for this are interpreted in a later section.

Reliability of Constructs. Cronbach alpha measures of reliability were conducted for each English and Maths construct, showing them to have good internal consistency. For English, alpha coefficients were: perceived competence $\alpha=0.77$, motivation $\alpha=0.86$, affect $\alpha=0.90$. For Maths, reliabilities were: perceived competence/affect $\alpha= 0.93$, motivation $\alpha=0.87$. Summary statistics for all constructs are shown in Table 1.

[See Table 1]

Assessing Normality of Distributions

Dividing skewness and kurtosis statistics by their respective standard errors expressed skewness and kurtosis in standard deviation units and these revealed five absolute values exceeding two. A statistically significantly negatively skewed distribution was found for English motivation (skew/SE=-3.83), Maths motivation (skew/SE=-3.37) and perceived competence/affect for Maths (skew/SE=-2.65). Statistically significant kurtosis was found for English motivation (kurtosis/SE=2.33) and Maths motivation (kurtosis/SE=-7.57). Because of these significant departures from normality, Spearman non-parametric correlations were employed to investigate relationships between constructs.

Correlational Findings

Statistically significant ($p< 0.05$) correlations were found between perceived competence and affect for English ($\rho=0.38$), perceived competence for English and perceived competence / affect for Maths ($\rho=0.27$), intrinsic motivation for English and perceived competence / affect for Maths ($\rho=0.31$), intrinsic motivation for English and intrinsic motivation for Maths ($\rho =0.71$), affect for English and intrinsic motivation for Maths ($\rho=0.27$), and affect for English and perceived competence/affect for Maths ($\rho=-0.24$). Correlations are summarised in Table 2. Figures 3A and 3B depict relationships between the focal constructs of perceived competence and intrinsic motivation for English and perceived competence/affect and intrinsic motivation for Maths.

[See Table 2, Figures 3A and 3B]

Summary of Responses from Interviews

The selection of the six focal interview groups permits the uncovering of interactions between variables and allows us to answer questions about how and why students who do not feel competent still manage to have high intrinsic motivation, how and why students with high competence perceptions can have low intrinsic motivation for learning and then, to contrast the facilitative factors for intrinsic motivation with the impediments to intrinsic motivation to uncover what it is that makes students with high competence perceptions also have high intrinsic motivation. By looking at these factors that impede and promote intrinsic motivation for a group of highly motivated students, we can then answer the question asking what it is that links competence perceptions to intrinsic motivation. Certain trends were apparent within each of the six focal groups. The main differences in responses lay between focal groups 1, 2 and 3, with similar relationships between self-perceptions of competence, motivation and affect within each of English and Maths. Emergent themes for each focal group are presented in the following three sections.

High Self-Perceptions of Competence and High Intrinsic Motivation (Groups 1E and 1M). Students with high perceptions of competence and high intrinsic motivation all indicated a strong liking for the subject in relation to which they were being interviewed. They received positive feedback from teachers, friends and parents. This led to good feelings associated with the subject, increased interest level and hence, a desire to improve even more, practice more challenging questions, and thereby, get even better at the subject. Competition was not the motivating factor here, but comparisons were. Students indicated they either wanted to 'keep up'

with the high achieving group in the class and/or beat their personal best. Interestingly, all students indicated their rank in the class. The students in the Maths focal group mentioned they enjoyed being able to know exactly how they are going, how they can improve further and how they can fix up their mistakes, and that these factors were revealed to them by the way Maths is assessed. The Maths focal group mentioned their interest for Maths sometimes changes. If material is not challenging enough or begins to get repetitive, their interest in Maths decreases.

Low Self-Perceptions of Competence and High Intrinsic Motivation (Groups 2E and 2M). Students with low perceptions of competence and high intrinsic motivation had feelings of dislike associated with the subject (consistent with the original hypothesis). Insults or negative comments directed at these interviewees from classmates or parents were reasons for this dislike, but were also strong motivating factors to improve, and this explains their high measure of motivation. The embarrassment of being the target of cruel insults and the belief of not being as competent as others in the class, led these students to the determination to increase their competence, and in so doing, avoid negative feedback. Participants mentioned that after receiving feedback, they felt they didn't want to do the subject or get better at it because they just didn't like it. Then, after some thought, they realised the importance of improving in the subject for 'the future' and/or to avoid negative feedback.

High Self-Perceptions of Competence and Low Intrinsic Motivation (Groups 3E and 3M). All interviewees with high perceptions of competence and low intrinsic motivation indicated they liked the given subject because they were good at it. However, low intrinsic motivation levels stemmed from lack of teacher feedback, challenge and being extended in the subject. Positive feedback from parents, classmates and teachers upheld their high self-perceptions of their abilities and all students noted that these compliments made them feel they didn't need to keep improving. Further, class work was getting so repetitive and boring for them, that they were losing interest in the subject. These students, through obvious lack of stimulation, had a strong desire for challenge.

[See Table 3]

Six Narratives Exemplifying Relationships between Perceived Competence, Intrinsic Motivation and Affect in the Domains of English and Maths

The following stories are centred around the responses made by the interviewees, summarised in Table 3. Each narrative is constructed to be typical of the interview responses for each focal group.

Narrative 1: The story of a student with high self-perceptions of English ability and high intrinsic motivation

I don't know what it is about English that makes me love it so much! Maybe it's the comments people make. I love hearing the constant: 'Wow! You've done so well' or 'Look what the teacher wrote about your story! I wish I got comments like that from Mrs Evans!'. It just makes me feel so good to be the best in the class. Sometimes I feel so flooded with pride that I think the whole class will see how good I think I am. In a way, I deserve to go so well though. I think I try a lot harder than the others in my class and after all, I'm not very good at Maths so I have to be really good at something to make up for it!

I'll never forget last Tuesday when I got asked to go into the English Competition. Me and Sally were the only ones to be asked and I know I am better than Sally at writing stories, doing spelling, grammar, and in

all other parts of English! The teacher read our names out in front of the whole class and I felt so proud! Even the boys congratulated me and they never do things like that! Ever since then I've felt like doing even better in English and every time Mrs Evans says it's time for English I get a weird sort of excited feeling in my stomach. I feel like I'm even more interested in it now and I like it even more than I used to. I'm hoping to get another Distinction this year, just like last year. It was so good being presented with the certificate in front of the whole school at the assembly. My Mum and Dad took photos of me receiving the certificate and the photo is now hanging on my wall at home and in the classroom on Mrs Evans' noticeboard.

It's weird being better than my parents at English! Every time I bring home my homework to do, I have to explain it to them and help them understand it. It's so good to know I can help them and they can be proud of my abilities and thankful to have a daughter who can help them understand the things they are too embarrassed to ask other people (such as how to write an important letter or how to spell certain words).

Looking ahead, I can see myself as a writer or a lawyer. These are really important jobs in the community and I think I would be good at both of them. I can't wait for high school so I can get even better at English and work towards getting a good HSC mark and a good career as a lawyer or an author. I guess that's why I like English so much! Yeah... it's because I'm good at it. Well, not just good at it but 'the best'. That's why I am so interested in doing better and better too. I just love the feeling I get when I get results back, get encouragement from friends or get asked to go into a competition! It's like going to the district swimming carnival and winning the race and hearing the clapping and whistles when I raise my head at the end of the race. It's that feeling of victory that makes me want to learn English. If I can't be good at Maths, I can be the best at English instead!

Narrative 2: The story of a student with low self-perceptions of English ability and high intrinsic motivation

I hate English. Well, I s'pose you should call it a 'dislike'. I know why I hate it (or dislike it). It's 'cos I'm really bad at it. Everyone makes me feel like I'm dumb at spelling, dumb at writing stories... even Jules. She's s'posed to be my best friend and she couldn't even read my creative writing task seriously the other day. She started laughing when I had all the words mixed up and spelt the wrong way… At least Jules doesn't tell me I'm hopeless. All the guys in my class say things like: 'You're pretty hopeless at English' or 'That's crap! Look at what Mrs Evans wrote about your grammar'. I'm really sick of getting bad comments about my efforts. I know I'm not good but they don't have to make me feel worse!

I just don't know why I can't understand what all the others understand. Well, I sort of understand English but I'm not the best at it. I'm not even near the top of the class. In fact, I'm near the bottom. I hate the boys insulting me. They always tell me I'm not good at it and I know they think I'm stupid. I can't help comparing myself with others. They just do so well.... some of them. But then, the insults make me feel like trying harder. It's weird but I feel like getting better so they won't hassle me anymore and then I can feel better about English and show them what I can do.

Mrs Evans is good though. She always helps me. I don't like it when she makes me read aloud in front of the class though 'cos that just makes me embarrassed. I feel I can't read much. I just stumble along and I can imagine them laughing as I'm trying. Anyway... I also hate getting feedback and results. The bad results make me want to do less work and just not try anymore. Well, that's the feeling I get first. Then, my feelings change. I realise I need to learn more and I know it's really important that I do better for the future. Well,… so my parents tell me anyway. They always push me and tell me to keep trying and working at English since it's so important for my future. So then I feel like trying harder again. I guess

it's 'cos I want to be a lawyer when I grow up and I know English is important in order to be a good lawyer and get a good mark in the HSC.

I just wish English was more interesting. If it was, I would probably go better. I'm heaps better at Maths and that's why I like it more. I should be thankful to my friends though. They try to help me and encourage me in English. I wish I could just improve and not go through the long process of practicing in order to get to where I want to be! Yep! That's why I really don't like English. I'm 'hopeless at it'. That pretty much sums it up!

Narrative 3: The story of a student with high self-perceptions of English ability and low intrinsic motivation

I love English. On a scale out of 10, where 10 means I love English, I'd give it 10. I think I'd give myself a 10 out of 10 for my ability in English too. It sounds like I'm boasting but the truth is, I'm top in my class. Anyway, English... It's really cool but the English we do in class is getting a bit... repetitive I guess is the word. I'd still prefer to do it than do Maths 'cos I'm heaps better at English and Maths is just not my forte. I've just found myself getting bored lately. Like the other day...

We were all made to do yet another page out of our English workbook. I felt like asking Mrs Evans: 'Why? What's the point?'. I mean, if I get top marks every single time I complete a page in the book and I finish before every one else has barely completed the first question (and then have to sit there with my arms folded until they are all up to where I am), what really is the point? I don't know! Maybe I'm losing interest in English. Well, wouldn't you if you had to do the same things over and over again? I'm looking forward to high-school English. At least it might be a bit more challenging and exciting!

Don't get me wrong! I love the compliments: 'Congratulations! Great work once again' from my teacher; 'Good son. You really make me proud' from Dad; 'Wish I could enter all those competitions too' from my friend Carl (who never gives compliments); 'You'll be great at high school' from my tutor... I get the feeling I don't need to do English anymore 'cos I don't need to improve. I'm already the best. I know everything I have to know at this stage. Could this be true? I got asked to go into the University English Competition again today...and to go on the panel at the Sydney Writers' Festival. Yep...perhaps I don't need to learn English for a while...

The only thing that would make me enjoy English like I used to, would be to get new activities from Mrs Evans. You know, like quizzes, tests and problems to solve. Maybe even role-plays to write. Just something different. Something harder. Something that would challenge me. Something to put the excitement back into the subject again. Then, every time Mrs Evans announced it was time for English again, it would change the feeling of boredom to one of excitement! Yep. That's what I need. The compliments, the positive feedback and the invitations aren't enough to make me want to learn English in class any more. What I need is a change. I need new and exciting activities so I can rise to the occasion!

Narrative 4: The story of a student with high self-perceptions of Maths ability and high intrinsic motivation

Yep, I'm at the top of the class in Maths. Always have been in fact. English is another story so let's not talk about that. Maths is 'my thing' and that's why I like it! It makes me feel proud to be so good at it. I have no doubts that I'm good at it by the way. I mean, who would when they constantly receive the highest marks in the class? I also constantly hear things like: 'Wow, you're excellent at Maths. I wish I could be as good', 'Oh, you beat me again. You always come first! Its not fair!' or 'Great work once again Stevie! You're looking good for the Maths Competition again this year. Looks like another High Distinction on the way for our school'. It's these comments that spur me on. They make me feel really good about my ability in Maths. My Dad always says the feeling of pride is the best feeling and I agree! It makes me love Maths, makes me want to practice it even more and do even better next time.

Mum's questions are always good. She's been giving me Maths questions and helping me with my Maths all year because she really wants me to get into a selective high school. Her questions aren't as fun anymore though. She says I've passed her now! It's now up to Dad, my brother and my tutor to challenge me. Dad is really smart. He's a lecturer in Maths at Uni and my brother is doing a Maths course at Uni as well. My tutor is great. She's heaps of fun and she always gives me questions that she knows I'll have to think about a lot first. Problems are what I love and especially the problems that have relevance to real-life. She always thinks I'll never work them out but she says I'm really starting to surprise her! I'm surprising my teacher a lot lately too. She's finally realised that I need harder problems and it's definitely making Maths sessions at school a whole lot more interesting! It's better than getting the same things to do all the way down the page! I've had enough of those repetitive textbooks! It's funny 'cos we used to always have competitions in class to see who could get the highest mark or who could come first. I have to say that I always won so now I just try to beat my own score. Like in soccer I guess. I try to beat my own personal best each time. It really makes me want to do better and makes it more exciting.

When I was awarded with a merit certificate for my efforts and results in Maths at the school assembly, the Principal, Mr Brown, asked me why I liked Maths so much. I didn't really want to say 'because I'm good at it' (even though it is probably the main reason)! Instead, I stated another important reason: 'Because I enjoy challenges and Maths is like a challenge to me. There is always a correct answer. Always a right or wrong. I love this aspect of Maths because you know how to fix up your mistakes and improve for next time. You also know exactly how you are going in Maths. Also, I see the importance of Maths. Maths is part of everyday life and that is why we should enjoy it and try to get better at it.' I was pretty proud of my answer. It was the truth, after all. I guess I hid the other reasons though: because I'm good at it, and because I love improving, getting more encouragement from others and improving again! I like making my big brother, my Dad, my tutor and my teacher proud of me! After all, I'm proud of myself!

Narrative 5: The story of a student with low self-perceptions of Maths ability and high intrinsic motivation

Some people are scared of spiders, some are scared of flying in aeroplanes, others are scared of... well, I'm scared of Maths. I hate it. I've never been good at it. I can remember my Year 4 teacher yelling at me and telling me to stop mucking up in Maths classes and I remember using my behaviour as a cover up... A cover up to not do Maths.

I don't need to wonder why I hate it so much. It's obvious and it always has been. I'm hopeless at it. In fact, as others in my class have often told me: 'Man, you suck at Maths'. I do. I have to agree with them. I'm sick of seeing those big red crosses all over a results sheet. In fact, the crosses have started getting smaller in size lately. Maybe Mrs Evans is starting to feel sorry for me... On second thoughts, she mustn't feel sorry for me because she still gets us all to read out our marks in front of the entire class. I hate it. I don't know whether I imagine it or not but when I read out my marks I'm sure most people in the class snicker and laugh. If Mrs Evans felt sorry for me she could at least record the marks in her book before she gave them back to us. That would save us having to read them out loud for everyone to hear. It would be a lot less embarrassing and it would make me enjoy Maths a lot more and prevent me from going red and sounding like an idiot every time the 'mark-calling' episode came up.

I s'pose the comments like 'Man you suck at Maths' and the 'mark-calling' sessions make me want to improve my Maths ability a lot. I try to get better to save myself the embarrassment of such times. I don't bother comparing my marks with others 'cos I'm just not in their league, but I do strive to keep up with my friends during Maths sessions. I kind of use them as a measure for where I should be. You know, for how long I should be spending on a Maths task and stuff like that... They are good to me, my friends. They encourage me and don't give me insults like the others in the class do.

Sometimes I think my teacher should give me extra help. She knows I'm miles behind the others. My parents encourage me and tell me I'm good when they know I'm not, but they can't help me 'cos they don't understand it themselves! I don't want a tutor 'cos I don't want to be pushed, but I do want more individual help from Mrs Evans! I guess that's the reason why I like English so much. When you're not good at something, you try to get better at something else to make up for it. I'm good at English. It's a lot less scary and less threatening 'cos you don't get to really find out how you are going compared to everyone else 'cos you don't get exact marks back. Sometimes when I get my marks back in Maths I feel like giving up and just not bothering trying to improve anymore. After more thinking though, I realise the importance of improving: to not have to listen to the awful insults, to save myself embarrassment, to prepare myself for high school and to just not hate maths as much as I do. Maths is more scary than spiders and more scary than flying! It shouldn't be, I know. But that's why I want to improve...

Narrative 6: The story of a student with high self-perceptions of Maths ability and low intrinsic motivation

Yeah, Maths is great and all but 'school Maths' is very different from Maths out of school! Maths at school has turned boring! I'm past it! I'm too good for it I s'pose and it's just not challenging or fun anymore! I'm the best Maths student in the class you see. I get compliments from everyone. I get told how good I am by my classmates, my Dad, my tutor and my Mum, but they're starting to sound a bit boring and repetitive now. Yeah, repetitive like school Maths I guess.

Mrs Evans announces that it's time for Maths and all the excitement that used to surge up in my stomach just doesn't happen. I know what's coming, that's why. The same old

textbook, the same lot of questions all down the page, the same routine. It's boring I'm the top student so I should get top questions. Harder questions. Challenging questions like I get in the competitions I go in outside of school. Even competitions with others in the class have lost all their fun 'cos I'm miles ahead of everyone and I always win. There is no wonder in it anymore. Everything is predictable: I will finish first, I will beat everyone else and I will be the one sitting there at the end, twiddling my fingers with nothing to do! What kind of a reward is that?

My teacher doesn't even give me any encouragement anymore. I guess she's used to the whole routine too. It's pretty disappointing actually, getting no feedback at all. Why doesn't she change it then? Why can't she just find some challenging questions for me or get me to do something different, give me some work to do with a calculator, or even give me some equipment to work with? It's pretty simple really. Well, I think so anyway... tests, quizzes, games... anything except what we do every day would do! Maybe I don't need to do Maths anymore. Maybe I'm just so good that I don't need to learn anymore Maths for a while... That's all I can work out from the situation. Well, until the day comes that I receive some new Maths work and feel challenged and interested in a Maths activity again, I'll stick with this line of thought!

DISCUSSION

Before the relationships between *perceived competence*, *intrinsic motivation* and *affect* are discussed, an explanation is warranted for why only two factors were extracted for Maths instead of the expected three as were found for English. For Maths, items measuring affect and perceived competence loaded on the same factor. It is theorised that this result may be due to the reporting and assessment criteria used in Maths compared with those used in English. Maths results are usually given as a numeric mark relative to others in the class. This type of feedback is likely to create an immediate positive or negative affective reaction for the student regarding

his/her ability in Maths. Hence, we might expect affect and competence to be closely related for Maths. In contrast, assessment for English is usually reported through the writing of comments by the teacher. Such comments may be less likely to provoke an affective response, implying that affective reactions may develop separately from perceptions of competence in English.

Relationships Between Perceived Competence, Intrinsic Motivation and Affect from the Survey Data

The attenuated distributions for Maths and English intrinsic motivation may explain low correlations between constructs in all instances except the high correlation between Maths and English intrinsic motivation. Although there was a full range of scores along the 7-point scale for competence ratings, there was a restricted response range for intrinsic motivation (no respondents scored themselves in the lower end of the scales). It could be this restricted response range that is masking any real relationship between competence perceptions and intrinsic motivation.

This attenuation may have resulted from the unmotivated students not wanting to take part in the study (39% of the sample population did not consent to partake) and hence, being unrepresented in the data. This could also explain the reason for the high correlation between intrinsic motivation in Maths and English. Alternatively, attenuated intrinsic motivation distributions could be due to items measuring intrinsic motivation being on a 5-point Likert scale, in contrast to affect and perceived competence constructs measured on scales from 1 to 7. Perhaps this 5-point scale posed a restriction to possible responses, with more discrimination between student ratings possible if a 7-point scale had been used. It is worth noting that the opposite was revealed in the interview data, where all except one interviewee reported low intrinsic motivation in Maths or English if they were highly motivated in the 'other' subject, an apparent contradiction discussed in a later section.

The positive correlation between perceived competence for English and affect for English (ρ=0.38) indicates that students who believe they have high ability in English in this sample also have a liking for English and conversely, students who believe they have low ability in English in this sample have less liking for English. The positive correlation between perceived competence for English and perceived competence / affect for Maths (ρ=0.27), indicates that students who believe they have high ability in English, also believe they have high ability in Maths and enjoy Maths. Conversely, this positive correlation indicates that students who believe they have low ability in English in this sample, also believe they have low ability in Maths and like Maths less. The positive correlation between intrinsic motivation for English and perceived competence / affect for Maths (ρ=0.31) indicates that students who are highly intrinsically motivated for learning English in this sample, also believe they have high ability in Maths and enjoy Maths. This positive correlation conversely indicates that students who have low intrinsic motivation for learning English, also believe they have low ability in Maths and less liking for Maths. The strong positive correlation between intrinsic motivation in Maths and English (ρ=0.71) indicates that students who are high on intrinsic motivation in English in this sample are also high on intrinsic motivation in Maths and conversely, students who are low on intrinsic motivation in English are also low on intrinsic motivation in Maths. The positive correlation between affect for English and intrinsic motivation for Maths (ρ=0.27) indicates that those students who have a general liking for English as a subject in this sample are also high on intrinsic motivation in Maths, whereas, those who have a general dislike for English are also low on intrinsic motivation in Maths. Lastly, the negative correlation between affect for English and

perceived competence/affect for Maths (ρ=-0.24) indicates that those students who have a general liking for English also believe they have low ability in Maths and have less liking for Maths as a subject.

Relationships Between Perceived Competence, Intrinsic Motivation and Affect from the Interview Data

Consistent with the original hypothesis, those students who believed they were good at either English or Maths liked it, and those students with low competence beliefs in a subject did not enjoy it. Although students with low competence perceptions were still motivated to learn the subject, their desire to learn was more to avoid negative comments, and to improve for high-school and tertiary education. Students who indicated they were highly intrinsically motivated in one subject, expressed lower motivation in the other and tended to concentrate their efforts in the subject they perceived themselves to be good at. As a consequence, they enjoyed this subject more, were more motivated and interested in this subject, practiced it more, got better at, further enhancing their high ability perceptions. This resulted in the other subject receiving less of the students' time and efforts, leading to lower ability perceptions, concentration on negative feedback, decreased enjoyment of the subject due to negative thoughts associated with it, less time spent on it, lowered motivation, hence leading to further lowering of their competence perceptions.

All interviewees with low perceptions of competence in one subject made reference to the other subject, and their higher ability perceptions and performance in it. This could be explained by participants wanting to protect their self-image and focus on what they are good at, described as *ego-protection* by Covington (1984). Alternatively, as explained in Marsh's *internal/external frame of reference model*, perceptions of competence could be influenced both by external and internal comparisons (Marsh, 1986). *External comparisons* are where students compare their abilities with their classmates' abilities, while *internal comparisons* are used by students when they compare their perceived abilities in one domain with their perceived abilities in another, independently of how these perceived abilities compare with other children (Skaalvik & Rankin, 1995). Hence, internal comparisons may account for this seeming discrepancy such that students who perform better at Maths than English, may perceive themselves to have low ability in English. Students who perform well in English but better in Maths may perceive they are not competent in English. This could explain how even those who believed they were good at the subject about which they were being interviewed, made reference to their abilities in the other subject. Alternatively, this could be a possible Hawthorne Effect, where a person's knowledge of the study's purpose affects his/her response (Burns, 1998). In this study, surveys were completed before the interviews and interviewees were consequently aware that the study focussed on English and Maths. This could have led students in the interview to comment on their abilities in the other subject, either from sensitisation to considering their perceptions related to Maths and English as a result of the survey, or from a belief that such comparative data was what the interviewer wanted to hear. Supporting evidence for this interpretation comes from the fact that no student made reference to any other scholastic domain.

Influences on Perceptions of Competence

Social Comparative Processes and Perceptions of Competence. Consistent with the findings of Harter and her colleagues (1984; 1990; 1992; 1999), the children in this sample utilised comparisons with others' abilities as a barometer to measure and evaluate their own abilities. A competitively-structured environment then, does not have to exist for children to compare their own abilities with others and evaluate their own competencies, since self-evaluation here appears to be normatively based.

Significant Others' Influences on Perceived Competence. This research supports the proposition that for students in the sixth grade, feedback from significant others forms the basis of competence perceptions. Contrary to Harter's contemporary model (1999), parents were not found to influence perceptions of scholastic competence more than peers. Although parents had a positive effect on children's improvement of ability, with assistance from them mentioned in the majority of cases, their influence on children's self-perceptions did not appear as prominent as Harter proposed (1999). However, comparisons with and feedback from peers had important effects on students' competence perceptions. Both positive and negative feedback from others in the class clearly had beneficial or devastating effects on students' self-image and their liking for a given subject. Additionally, children incorporate teacher feedback into a general concept of their academic abilities. Students' self-perceptions and motivation levels were influenced more if they believed this feedback to be genuine and context-based. Even students with high ability perceptions desired teacher feedback, encouragement and an indication of how they could improve further.

Influence of Performance Cues on Competence Perceptions. The issuing of grades and marks does not occur in isolation from social factors. Most students mentioned the effects of comments made by the teacher or by peers about these performance cues. For example, one girl noted the effect of insults given to her by a boy in the class following performance feedback. As explained in Chapter 2, students face the demands of a school culture that increasingly reinforces extrinsic motivation through the grading process (Harter, Whitesell, & Kowalski, 1992) and this links to social comparisons as a source of student self-perceptions and to direct feedback from others which in turn, impacts on beliefs of competence. Again, this school culture is brought about through the use of normative assessment procedures. If criterion-referenced assessment practices were used in place of these normative practices, perhaps less overlap would occur between performance cues and social influences as factors impacting on the development of self-perceptions of competence. Again, the importance of criterion-based assessment practices in place of normative-based practices cannot be underestimated if we are to create positive and constructive learning environments in our classrooms.

Affect and Perceptions of Competence. Affect, as hypothesised, played the major role in shaping students' self-perceptions of academic competence and hence, their liking for the subject, their interest, their willingness to improve and practice, and their intrinsic motivation to learn. Affect not only acts as a source contributing towards the development of competence perceptions, but also provides a vital link between perceived competence and intrinsic motivation. Feelings of competence carry associated feelings about that subject, influencing motivation for learning. For example, if one feels competent in Maths, it follows that one feels good about this competence and hence, is more intrinsically motivated, more eager to engage in Maths tasks and has a desire to want to learn more in Maths. In contrast, if one feels one has low competence in Maths, one has negative feelings associated with these low competence

perceptions and it follows that one is less intrinsically motivated to engage in Maths activities in the classroom.

Summary of Findings for Each Focal Interview Group

Why do some students with low competence perceptions have high intrinsic motivation? (Groups 2E and 2M). Students with low competence perceptions and high intrinsic motivation did not enjoy the subject they had low competence perceptions in, and hence, did not feel intrinsically motivated for learning it in the initial stages following performance feedback. However, they later felt compelled to improve their abilities for the sake of avoiding negative comments directed at them and for success in the future. Encouragement from classmates, parents and teachers also increased student motivation for learning. The intrinsic motivation of the students in this group appears to be fostered by high performance approach/avoidance orientations.

Why do some students with high competence perceptions have low intrinsic motivation? (Groups 3E and 3M). It was the group of students with high competence perceptions and low intrinsic motivation, who were not being stimulated or challenged in class. Hence, boredom and repetitive class work were impediments to the link between competence perceptions and intrinsic motivation, and this gave the students the feeling of not needing to improve their abilities any further. Lack of appropriate teaching practice meant feelings associated with the subject had become stale and motivation levels had dropped, resulting in a group of students who had lost interest in the subject, in which they once felt highly intrinsically motivated to learn.

What factors facilitate high intrinsic motivation for students with high competence perceptions? (Groups 1E and 1M). In order to arrive at ways of facilitating high motivation for students with high competence perceptions, one must contrast the factors impeding high intrinsic motivation with the factors that facilitate the high intrinsic motivation. In essence, the students in Groups 1E and 1M were those receiving constructive and positive feedback from their teachers and classmates and were also those being challenged. This group stands in contrast to the students in Groups 3E and 3M who were not given constructive and positive feedback, or challenging tasks. Hence, intrinsic motivation increases when facilitative factors of positive and constructive feedback and appropriate challenging tasks are in place, instead of factors that impede the affective link between perceived competence and intrinsic motivation.

These findings support and extend the conceptual model proposed earlier (Figure 1). Perceived academic competence, affective reactions and intrinsic motivation were all shown to be inter-linked. Interview data enabled clarification of the mechanisms underpinning relationships, teasing out complex interactions and causal sequencing, that competence evaluation leads to affective reactions. It is this affective component which influences levels of intrinsic motivation and feeds back to influence perceived competence (see Figure 4).

[See Figure 4]

Contrasting Findings from the Survey and Interview Phases

The strong positive correlation found between intrinsic motivation in Maths and English is in contrast to the interview data, where participants high on intrinsic motivation for learning in one subject, were not as highly motivated in the 'other' subject. This apparent discrepancy may be

artifactual, due to interviewees mentioning Maths and English through perceiving this as the study's focus, subsequent to completing the survey. Indeed, interviewees did not mention their intrinsic motivation in any other KLAs which supports this interpretation. Alternatively, the in-depth nature of the interviews may have given students the opportunity to think more carefully about reasons for being motivated.

IMPLICATIONS FOR TEACHING PRACTICE

The classrooms from which participants were sampled are not maximally enhancing levels of intrinsic motivation. Educators can vary the classroom learning environment to enhance the intrinsic motivation of their students. The importance of interesting and optimally challenging activities for maintaining or enhancing intrinsic motivation cannot be overestimated. Teachers need to set students challenges at their own individual levels to enhance their motivation, and these tasks need to be challenging but attainable at the same time. In this way, students can feel they are making progress, consequently being able to enjoy the given task, and feel motivated to complete it. At the same time, teachers should not make class work repetitive. Regardless of ability level, students need a variety of learning experiences and exploration with new resources. Motivation levels are not static but change according to contextual factors, one of these being teacher actions. It is to be expected that students will like one subject more than another and feel they perform better at it. However, we should encourage students to like all subject areas of the curriculum regardless of their ability level, since it has been demonstrated in this study that affect does influence intrinsic motivation for learning (see Figure 4) and intrinsic motivation is important for maximising cognitive engagement which leads to successful learning.

Informative Feedback

Students with high and students with low perceptions of their academic competence not only want, but need specific and informative feedback. Criterion-referenced feedback is valued by students as providing guidelines for improving their abilities. This is where the teacher gives students a checklist outlining all the components he/she uses to determine whether students have mastered and understood a task. In this way, students' focus will be the criteria for mastery on an individual level instead of focusing on comparisons with others' achievements in the class. Ipsative referencing may be another alternative form of assessment, where the teacher's role is to emphasise the importance of striving to beat a 'personal best' and meeting self-set standards, rather than trying to beat others' performances who may be at different instructional levels. Group assessments are yet another form of assessment that could be effectively utilised, where the emphasis on individual assessment is removed in favour of emphasis on 'whole-group' achievement.

Parental Involvement

Parental involvement should also be encouraged by teachers since parents had a positive effect on children's improvement of ability, with assistance from them mentioned in the majority of cases. Teachers can raise parent awareness of their effects on their child's self-perceptions of competence and consequently, intrinsic motivation for learning. Invitations for parental involvement may be all that is needed to create a working and sharing relationship between children and their parents, and this could be first sustained through the use of a contract or checklist sent home where the parent/caregiver is given some responsibility for the completion of their child's homework.

Classroom Culture

A positive classroom culture is imperative for the development of positive self-perceptions of competence and resultant intrinsic motivation for learning. The climate of the classroom is determined to a large extent by teacher behaviour, as illustrated through the interview data. Since peers have been shown to be very influential in shaping self-perceptions of competence, teachers should not only encourage students themselves, but also encourage them to encourage each other. That is, constructive and genuine feedback, together with encouragement from others in the class, should be given to students and modelled by the teacher. Performance cues should be considered in relation to maintaining students' positive self-perceptions of competence and intrinsic motivation. Children holding low beliefs about their competence revealed the discomfort and negative impact of having marks read out in front of the class so teachers should avoid getting students to do so. Further, it became clear the issuing of grades undermined intrinsic motivation, again pointing to the importance of using alternative assessment strategies to norm-referencing. Teacher attitude is also of great importance in maintaining a positive classroom culture. Students remarked on the interest level created by their teachers, highlighting their pivotal role as models of enthusiasm. Teacher enthusiasm encourages positive attitudes in the minds of students towards the material they are learning. Further, students noted an appreciation of those teachers who were trusting and caring and who offered them assistance. These factors are crucial in fostering healthy self-perceptions of competence and hence, greater intrinsic motivation for learning.

Conclusions

The educational implications of these findings are clear. Teachers do have a role to play in fostering higher levels of students' self-perceptions of competence and in encouraging intrinsic motivation for learning. Although research findings do not translate into immediate classroom practice in all instances, there are a number of implications for teacher action to enhance students' love for learning. First, it is important that students have genuine and constructive feedback regarding their competencies. Secondly, it is important that students develop appropriate aspirations on an individual level, rather than focussing on outperforming others. Thirdly, it is disheartening for students to be in an environment where the same tasks are repeated over and over again so that some students believe they cannot ever do them and others feel unmotivated and unchallenged from repetition. Hence, there is a need for provision of challenging and stimulating tasks catering for all ability levels. Fourthly, it is our role to minimise the humiliation that can occur with poor performance and also, the impression some students have of not needing to learn any more. This could be achieved by replacing norm-referenced assessment practices with alternatives such as criterion, ipsative, and group based assessment tasks. In this way, we can foster an environment where achievements are valued and encouragement is appreciated. Fifthly, we can involve parents and encourage them to encourage their students, while also encouraging students themselves to encourage each other in their learning. These are realistic goals which will lead to enhanced self-perceptions of abilities, to greater enjoyment of learning, to a more positive classroom context and hence, to increased motivation for learning. Ultimately, teachers must foster students' intrinsic value for school work, not because it will necessarily lead directly to higher academic achievement, but because it should lead to increased cognitive involvement in the classroom from day to day. Students need to have both the 'will' and the 'skill' to be successful in the classroom and as educators, we can foster both of these by integrating these components in our models of classroom learning.

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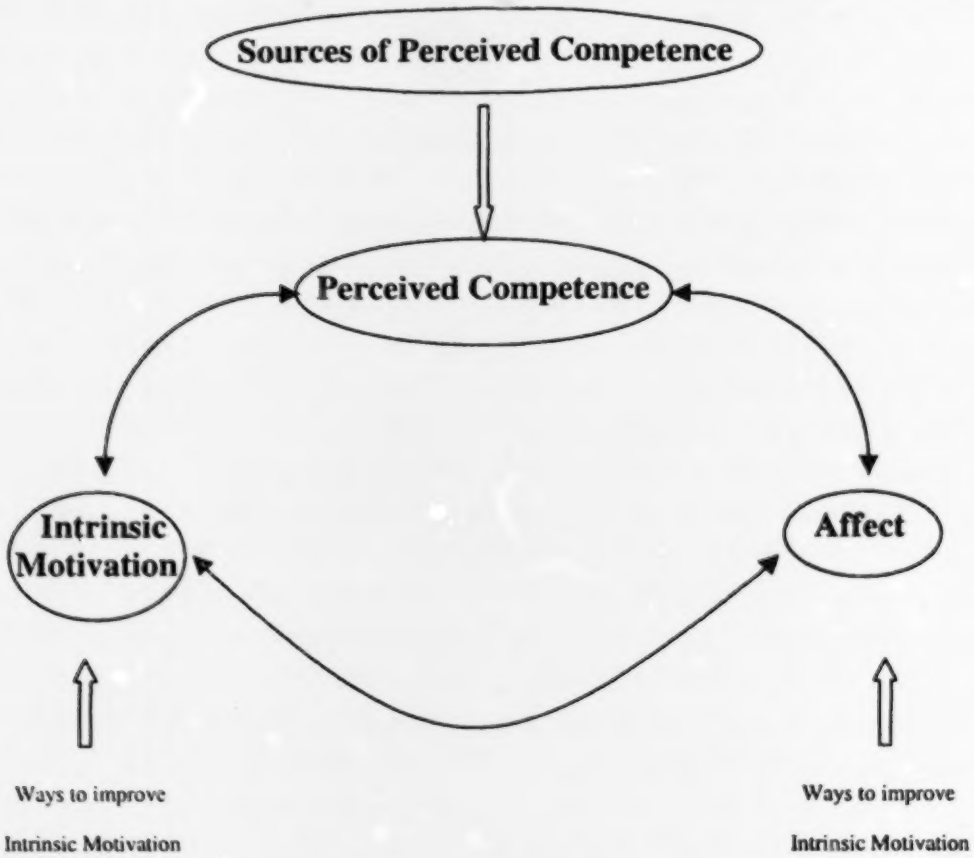

Figure 1. Conceptual model.

Perceived Competence

	low	mid	high
low			Group 3 E=12 M=4
mid			
high	Group 2 E=8 M=8		Group 1 E=14 M=12

Figure 2. Interview matrix showing selection of interviewees for English and Maths.

Table 1

Means and Standard Deviations for English and Maths Constructs

	ENGLISH			MATHS	
	Perceived Competence	Intrinsic Motivation	Affect	Perceived Competence/ Affect	Intrinsic Motivation
Mean	4.78	4.21[a]	4.31	5.03	4.42[a]
Standard Deviation	1.04	0.78[a]	1.47	1.36	0.70[a]

[a] Note. Intrinsic motivation was scored using a 5-point scale, while other constructs were scored using 7-point scales

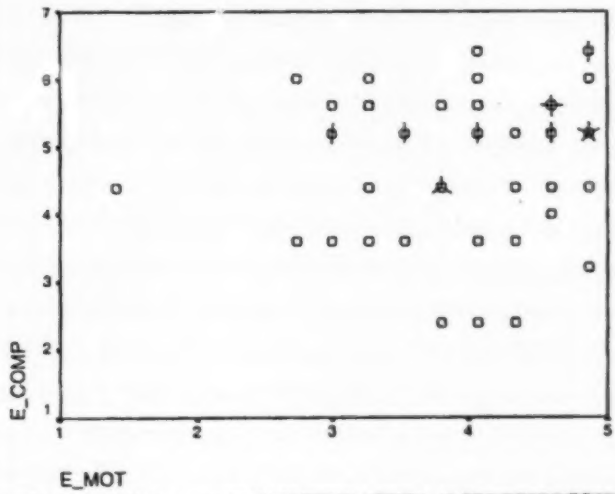

Figure 3A. Scatterplot for peceived competence versus intrinsic motivation in English.

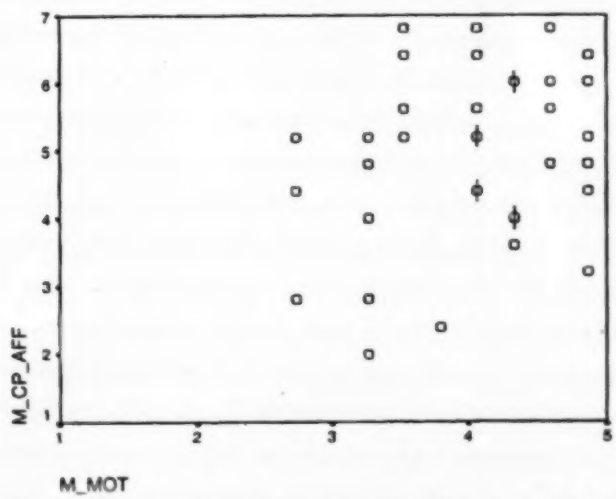

Figure 3B. Scatterplot for perceived competence/affect versus intrinsic motivation in Maths.

Table 2

Spearman Correlations between English and Maths Constructs

	ENGLISH Perceived Competence	ENGLISH Intrinsic Motivation	ENGLISH Affect	MATHS Perceived Competence/ Affect	MATHS Intrinsic Motivation
ENGLISH Perceived Competence	1.00				
ENGLISH Intrinsic Motivation	0.09	1.00			
ENGLISH Affect	0.38**	0.16	1.00		
MATHS Perceived Competence /Affect	0.27*	0.31*	-0.24*	1.00	
MATHS Intrinsic Motivation	0.10	0.71**	0.27*	0.25	1.00

** Correlation is significant at the .01 level (2-tailed).

* Correlation is significant at the .05 level (2-tailed).

Table 3
Summary of Interview Responses

	Group 1E (high perception of competence and high intrinsic motivation)	Group 2E (low perception of competence and high intrinsic motivation)	Group 3E (high perception of competence and low intrinsic motivation)
Sources of and thoughts on, Perceived Competence	**ENGLISH** Low Maths ability– 3 Positive Feedback: classmates –3 parents –3 teacher –3 Rank in the class - 3 Pride in ability – 3 Participation in 'Out of school' English – 2	**ENGLISH** Higher ability in Maths – 3 Negative feedback: classmates - 3 parents – 2 teacher – 2 Rank in the class – 2	**ENGLISH** Positive feedback– 3 Rank in the class – 2 Works with peers of equal ability – 2 Participation in 'Out of School' English – 3
Sources of and thoughts on, Motivation	Desire to improve ability – 3 Comparison as a motivating force – 3 Desire to beat personal best – 2 Importance of English for the future (Higher and Tertiary Education) -3 Parental assistance – 3 Parental encouragement – 3	Desire to improve ability – 3 Negative comments promote desire to improve – 3 Decreased motivation at first instance of feedback, then increased motivation – 3 Importance of English for the future (Higher and Tertiary Education) - 2 Encouragement from friends – 3 Encouragement from parents – 2	Not needing to improve any further at present – 3 Lack of teacher feedback – 1 Lack of challenge – 3 Class work boring and repetitive– 3 Parental assistance – 3 Parents' with high ability in English - 2
Sources of and thoughts on, Affect	High ability - 3	Higher ability in, and stronger liking for Maths – 3 Dislike for English – 3 Enjoys talking rather than writing activities – 2 Dislike of reading in front of class – 2 Boys insulting ability level (girl) – 1	High ability – 3 Lower ability in Maths and therefore less liking for Maths – 3 Prefers 'Out of School' English for it's higher challenge – 3
	Group 1M (high perception of competence and high intrinsic motivation)	**Group 2M** (low perception of competence and high intrinsic motivation)	**Group 3M** (high perception of competence and low intrinsic motivation)
Sources of and thoughts on, Perceived Competence	**MATHS** Low English ability – 3 Positive Feedback: classmates –3 parents –3 teacher –3 Rank in the class – 2 Pride in ability – 3 Participation in 'Out of School' Maths- 2 Father is a mathematician – 3 Maths tutor outside school gives encouragement - 2	**MATHS** Higher ability in English – 3 Negative feedback: parents – 1 teacher – 1 Rank in the class – 2 Uses friends as an indicator of where their ability level should be – 2	**MATHS** Positive feedback– 3 Rank in the class – 3 Works with peers of equal ability – 2
Sources of and thoughts on, Motivation	Desire to improve ability – 3 Comparison as a motivating force – 3 Desire to beat personal best – 2 Interest level declines with decreasing challenge of questions – 2 Parental assistance – 3 Parental encouragement – 2	Desire to improve ability – 3 Negative comments promote desire to improve – 3 Decreased motivation at first instance of feedback, then increased motivation – 3 Importance of English for the future (Higher and Tertiary Education) -1 Encouragement from friends – 3 Encouragement from parents – 2 Parents' low ability/lack of understanding in Maths – 2 Lack of individual teacher assistance – 2 Practicality of Maths for real-life situations - 2	Not needing to improve any further at present – 3 Lack of teacher feedback – 2 Desire for more teacher feedback- 2 Lack of challenge – 3 Class work repetitive – 3 Parental assistance– 3 Parents with high ability in Maths – 3 Desire for new equipment and resources in class – 3
Sources of and thoughts on, Affect	High ability – 3 Enjoy knowing they can fix up mistakes – 2 Likes reporting/assessment criteria used in preference for those used in English– 3	Stronger liking for English – 3 Dislike for Maths – 3 Sees Maths as more threatening than English since exact marks are given – 3 Insults from classmates – 3 Dislikes calling out marks in front of class – 3	High ability – 3 Lower ability in English and therefore less liking for English – 2 Prefers 'Out of School' Maths for its higher challenge – 3 Maths tutor outside school gives encouragement – 3

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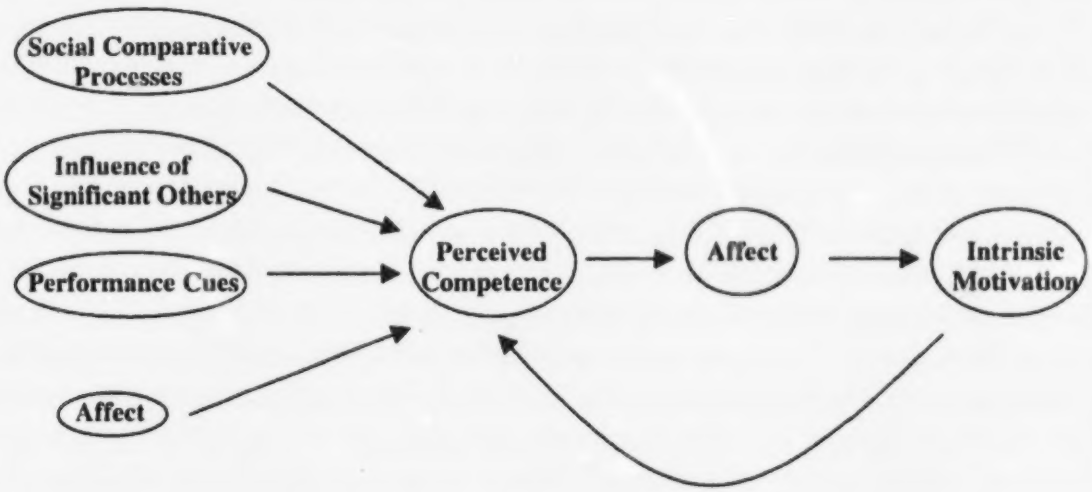

Figure 4. Extension of original conceptual model.

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